Construction Cost Escalation

The Washington State Story

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San Juan, Puerto Rico

Washington State
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Price Escalation Versus Inflation

EASTSIDE EDITION

The Seattle Times

TUESDAY

www.seattletimes.com

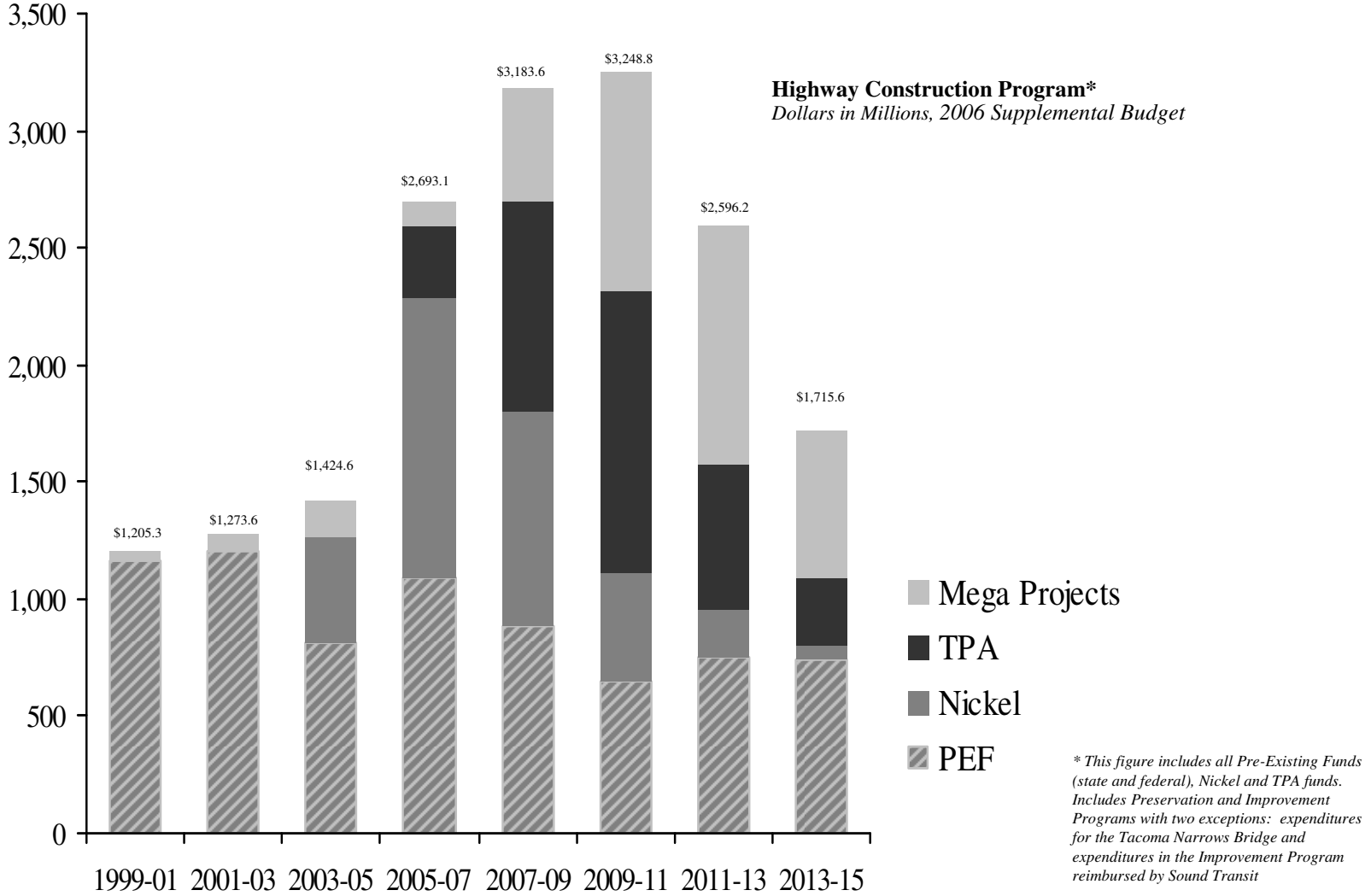
Sticker shock: Cost estimates for highway projects skyrocket

Cost Escalation – The Background

- Trends developed in 2002 and 2003
  - Mostly steel price and availability
  - Some concern over cement
  - Monitored close by WSDOT/AGC Team
- 2004 and 2005 showed marked increases in fuel
  - Major driver for all of our items of work
  - Hot Mix Asphalt (HMA) is estimated to be 36% dependent on petroleum products
  - Cement continues to loom
- Late August 2005, Hurricane Katrina compounds the problem
  - Reduction in Refinery Capacity
  - Increase in work and demand for material, equipment and labor
- 2005 and 2006 continues to "fuel" the market
  - Crude price run up, due in part to continued "geo-political" unrest
    - ~~$50~~ ~~$60~~ $70 barrel crude
    - ~~$2.00~~ $3.00 gallon diesel
  - Unprecedented construction program – both private and public

Timing Is Everything…

Why did WSDOT become so interested in cost escalation?

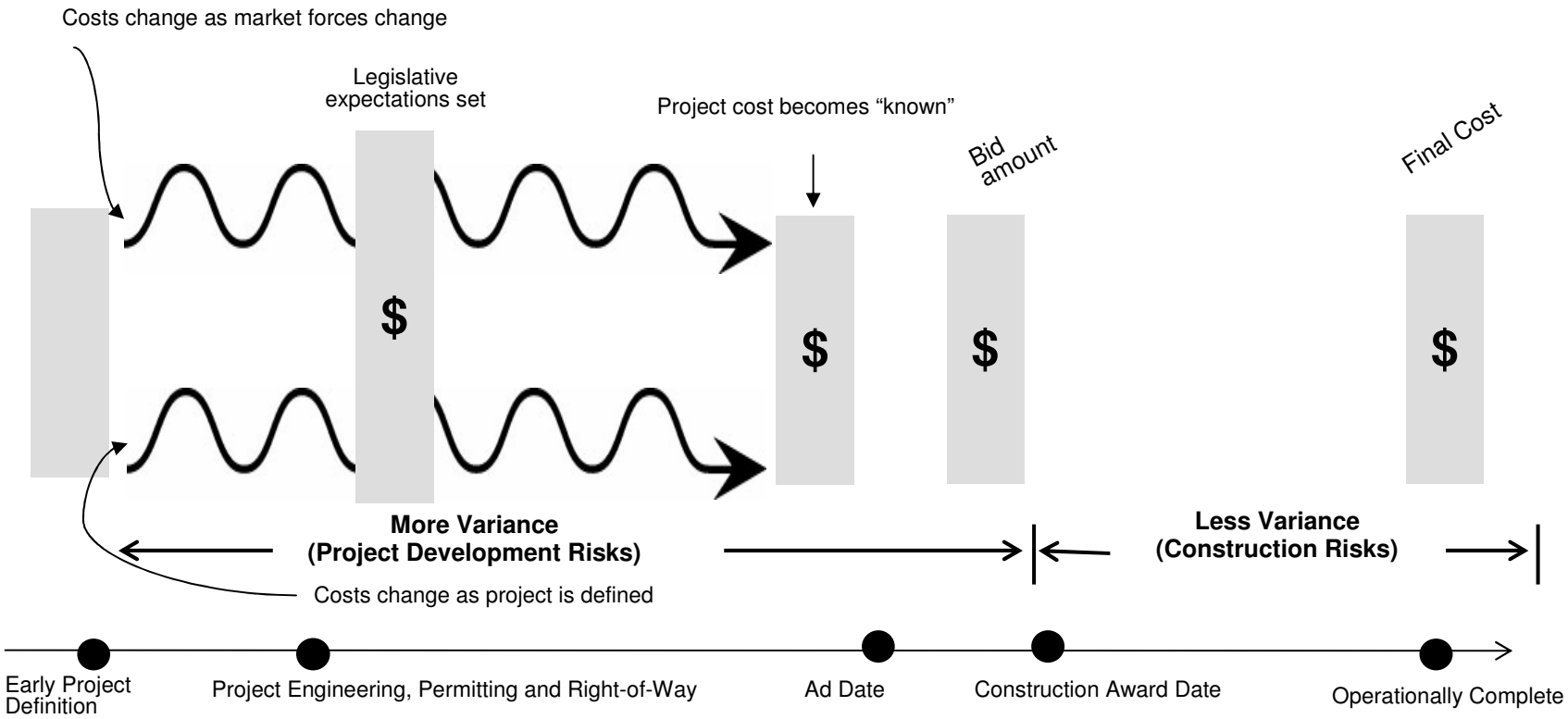


Highway Construction Program*
Dollars in Millions, 2006 Supplemental Budget

** This figure includes all Pre-Existing Funds (state and federal), Nickel and TPA funds. Includes Preservation and Improvement Programs with two exceptions: expenditures for the Tacoma Narrows Bridge and expenditures in the Improvement Program reimbursed by Sound Transit*

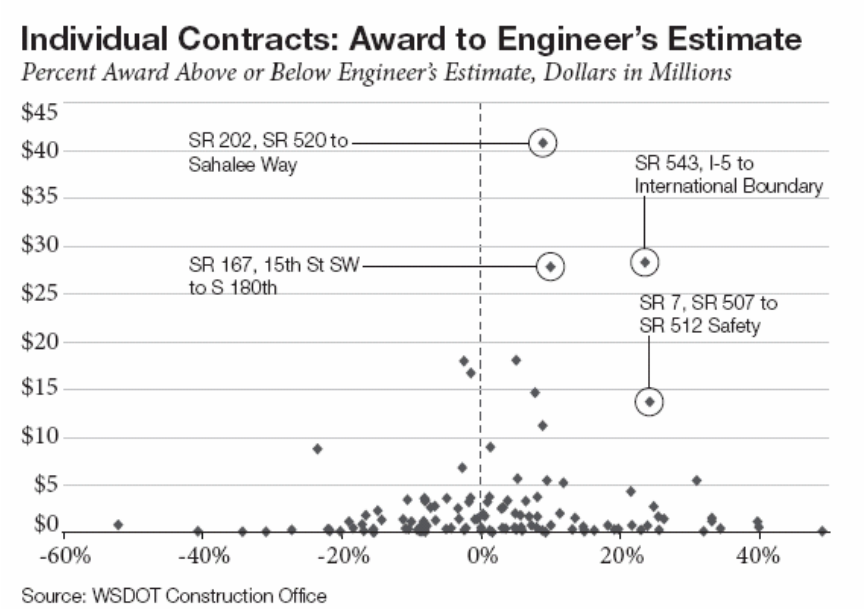
Development of Project Estimates

Budget is refined as project development process unfolds



*CEVP has been widely recognized across the country as a major step forward in project cost estimating for large infrastructure projects.

Contracts Awarded



Highway Construction Contracts Awarded

Year-to-Year Comparison

	FY2002	FY2003	FY2004	FY2005	FY2006
Number of contracts awarded	177	176	129	141	118
Total award amount for highway contracts	$250,561,516	$314,534,831	$389,592,349	$500,099,488	$361,514,031
Total engineer's estimate for contracts	$277,091,361	$355,420,644	$398,923,582	$511,364,300	$345,802,088
Average % awards were above/below the estimate	-7.5%	-6.5%	-1.4%	1.3%	1.9%
% total award is above/below the engineer's estimate	-9.5%	-11.5%	-2.3%	-2.2%	4.5%
Combined contract value awarded below the estimate	71.7%	84.0%	53.3%	74.4%	30.5%
Contracts awarded below the estimate	129	123	85	77	54
% of contracts awarded below the estimate	72.9%	69.9%	65.9%	54.6%	45.8%

[1]Does not include the Tacoma Narrows Bridge and the Hood Canal, Bridge Design Build Projects, or Emergency contracts.

Source: WSDOT's Construction Office

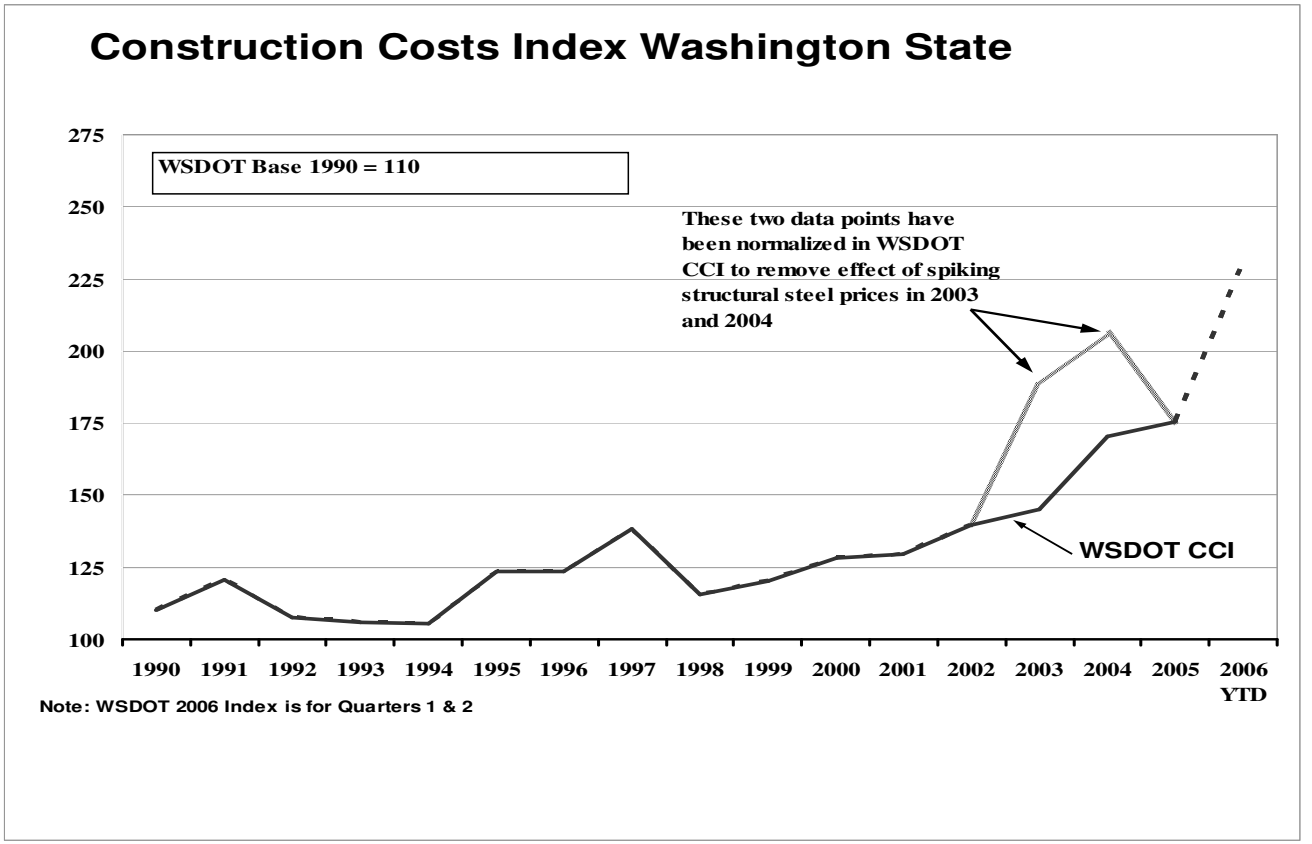
Costs of Construction Materials

The Construction Cost Index (CCI) helps WSDOT track market costs of a "basket" of common highway construction items that are strongly influenced by materials costs.

The following components (weighted as shown) are used to compute the CCI:

- **Concrete Pavement 3.2%**
- **Crushed Surfacing 7.9%**
- **Roadway Excavation 10.7%**
- **Structural Concrete 17.4%**
- **Steel Reinforcing Bar 5.4%**
- **Structural Steel 6.9%**
- **Hot Mix Asphalt 48.5%**

Data Source: Unit price history from low bids on the above construction materials collected from WSDOT bid openings.



The eleven-year average growth rate of the CCI from 1990 through 2001 was 1.5% per year. Since 2001, the average growth rate has been 12% per year.

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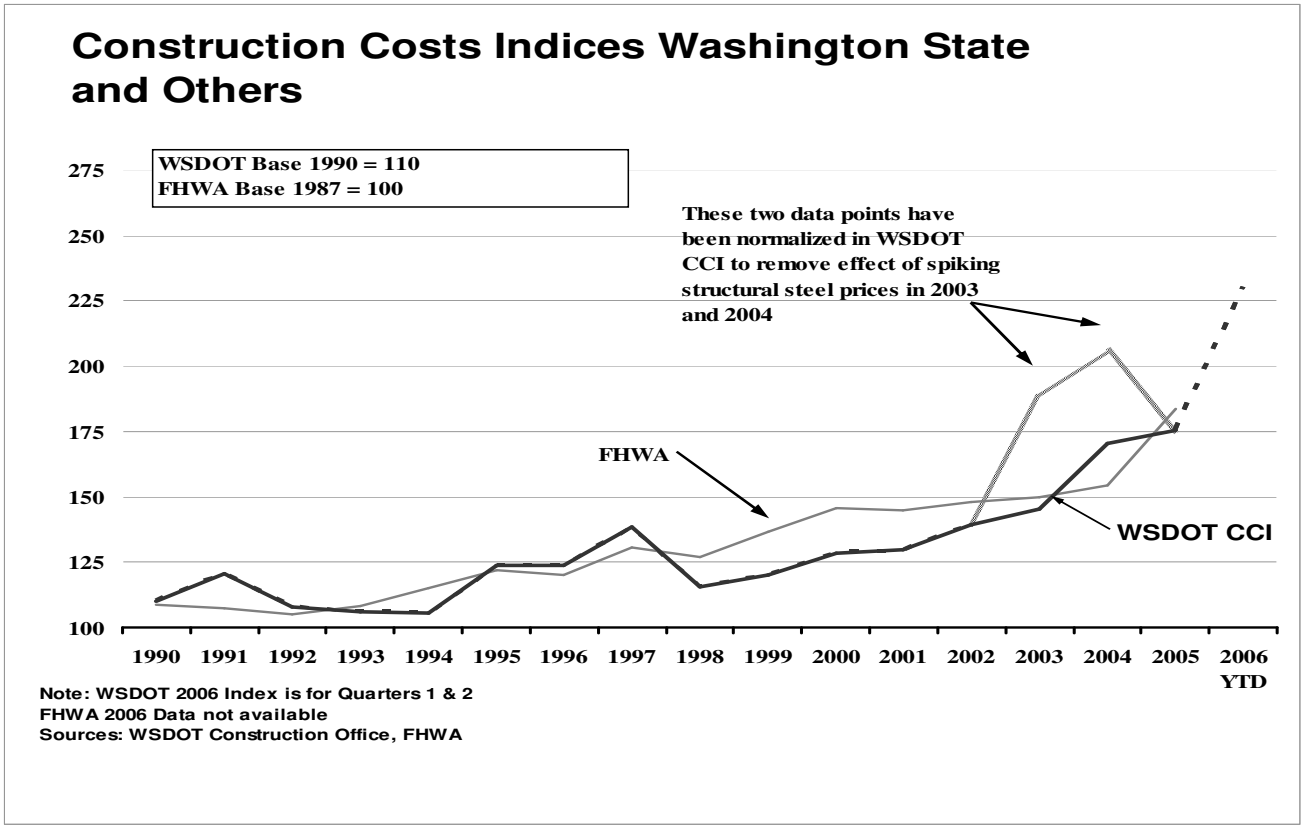

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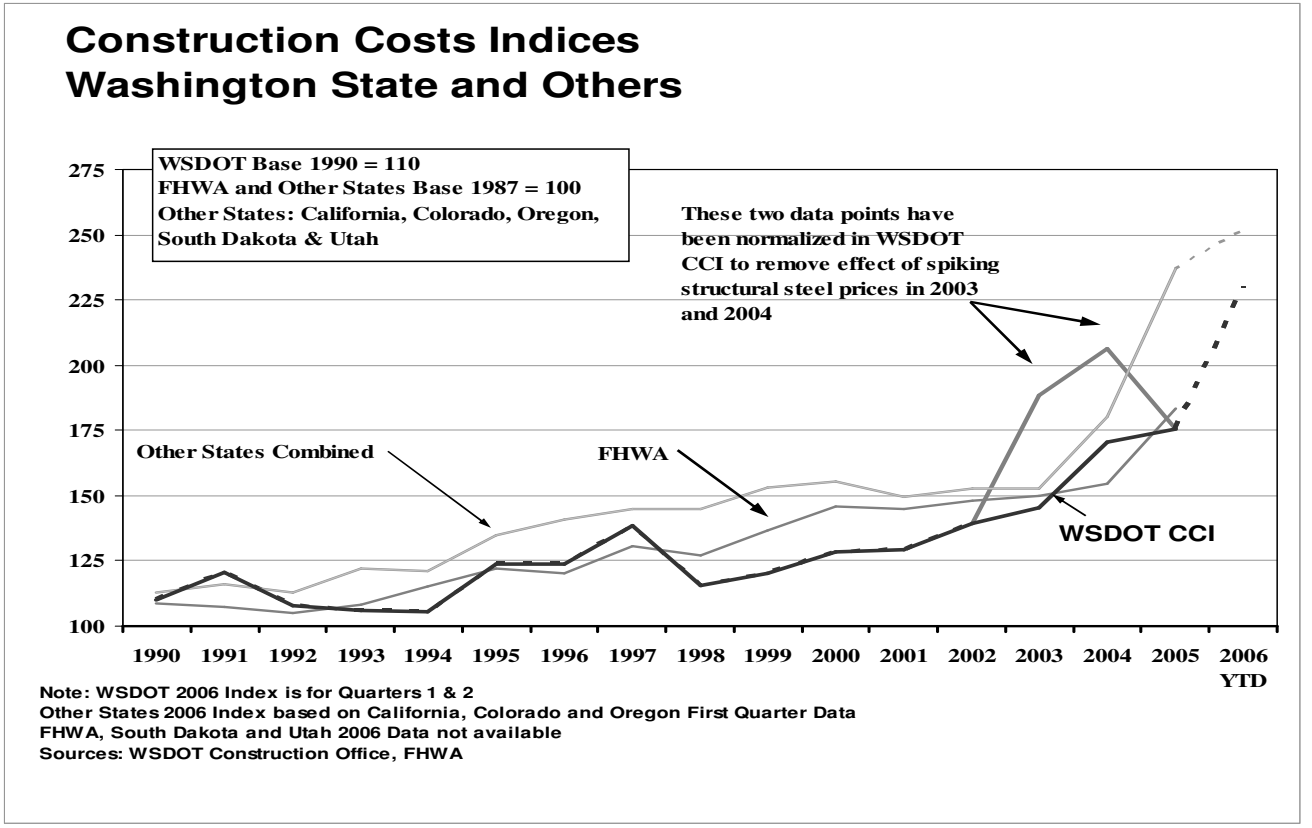

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Prospects for Labor Costs

- Labor costs contribute roughly 40% to contract costs
- Potential labor shortages
- Contractors can face a “premium charge” just to attract a qualified workforce in a booming construction market
- Contract negotiations could see upward pressure on wages, healthcare and retirement

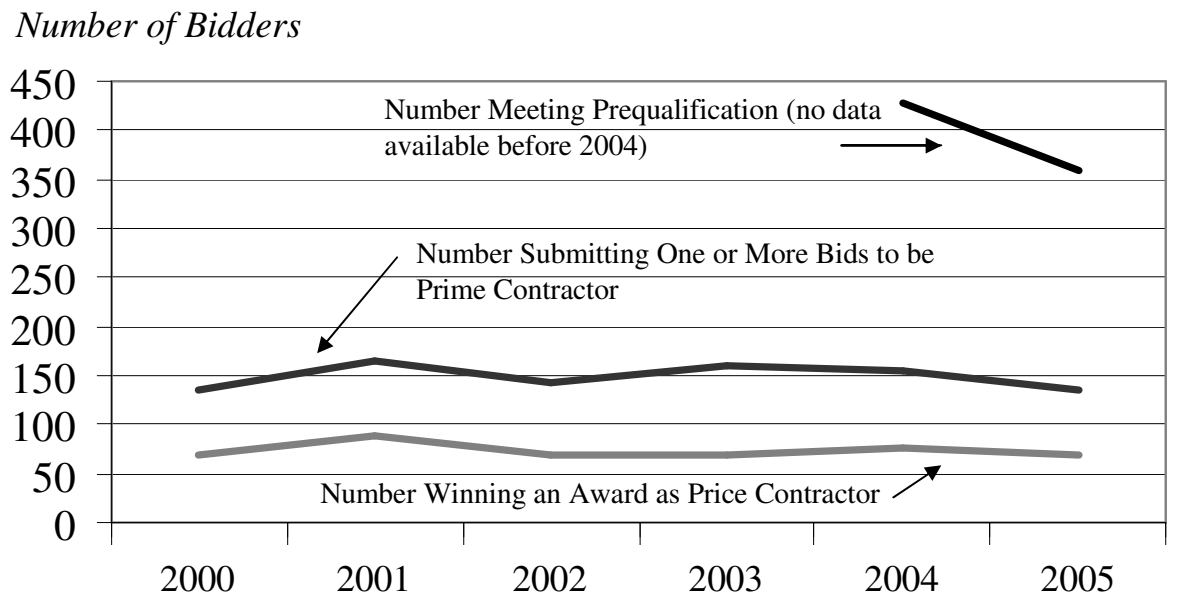
Consolidation of Bidders

Significant Acquisition and Consolidation Trends Affecting Pacific Northwest Market

- 1980's Fiorito Brothers no longer bids highway work
- 1990's Ledcor Industries no longer bids highway work
- 1994 Wilder Construction Co. acquires Construction & Rigging
- 1995 Progressive Contractors Inc. close in Washington
- 1997 Associated Sand & Gravel acquired by ARC Material Corp (currently known as Rinker Materials)
- 1998 Oldcastle Inc acquires M. A. Segale (currently known as ICON Materials)
- 1998 Atkinson Construction becomes a wholly owned subsidiary of Clark Construction Group, LLC.
- 1999 Oldcastle Inc acquires Inland Asphalt
- 2000 Granite Construction acquires Wilder Construction Co.
- 2001 Superior Asphalt acquires Morrill Asphalt
- 2001 General Construction Company becomes an affiliate of Kiewit Construction
- 2002 American Civil Constructors acquires Hurlen Construction
- 2004 Wilder Construction Co. absorbs key One Way Construction personnel

Contractor Participation

Number of Construction Firms Prequalified for Bidding On, and Winning WSDOT Construction Contracts



Specialty Areas

Subcontracting and supply

Hot mix asphalt. Adequate competition in most of Western Washington but only one firm now supplying the majority of the Olympic Peninsula. Much of Eastern Washington sees little or no competition.

Roadway striping. Only three active private firms in Washington.

Shaft Drilling. Six firms now seeking work on WSDOT jobs, but only two have oscillator/rotator capability. WSDOT is encouraging a Utah firm to become active in WA.

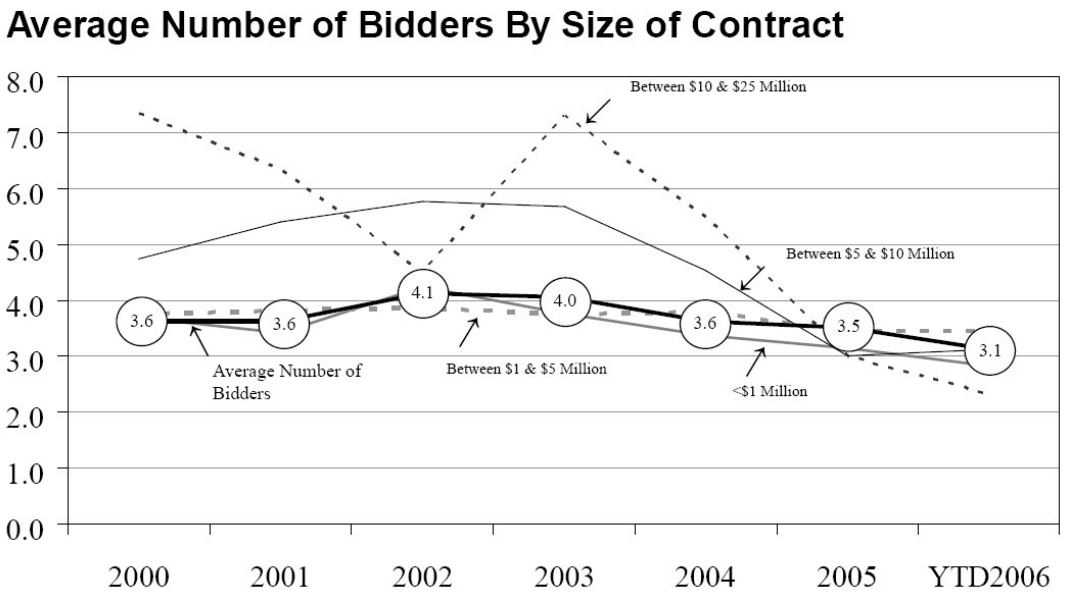
Concrete pre-stressed structural elements. Suppliers in Tacoma, Spokane, Yakima and Pasco. Oregon and Canadian suppliers can compete, depending on haul costs.

Concrete post-tensioned structural elements. Currently only two firms doing this work. A third is trying to make entry.

Steel fabrication. Now limited to firms in Vancouver and Portland.

Deck Overlays – microsilica, latex, polyester. There are primarily two firms doing this type of work.

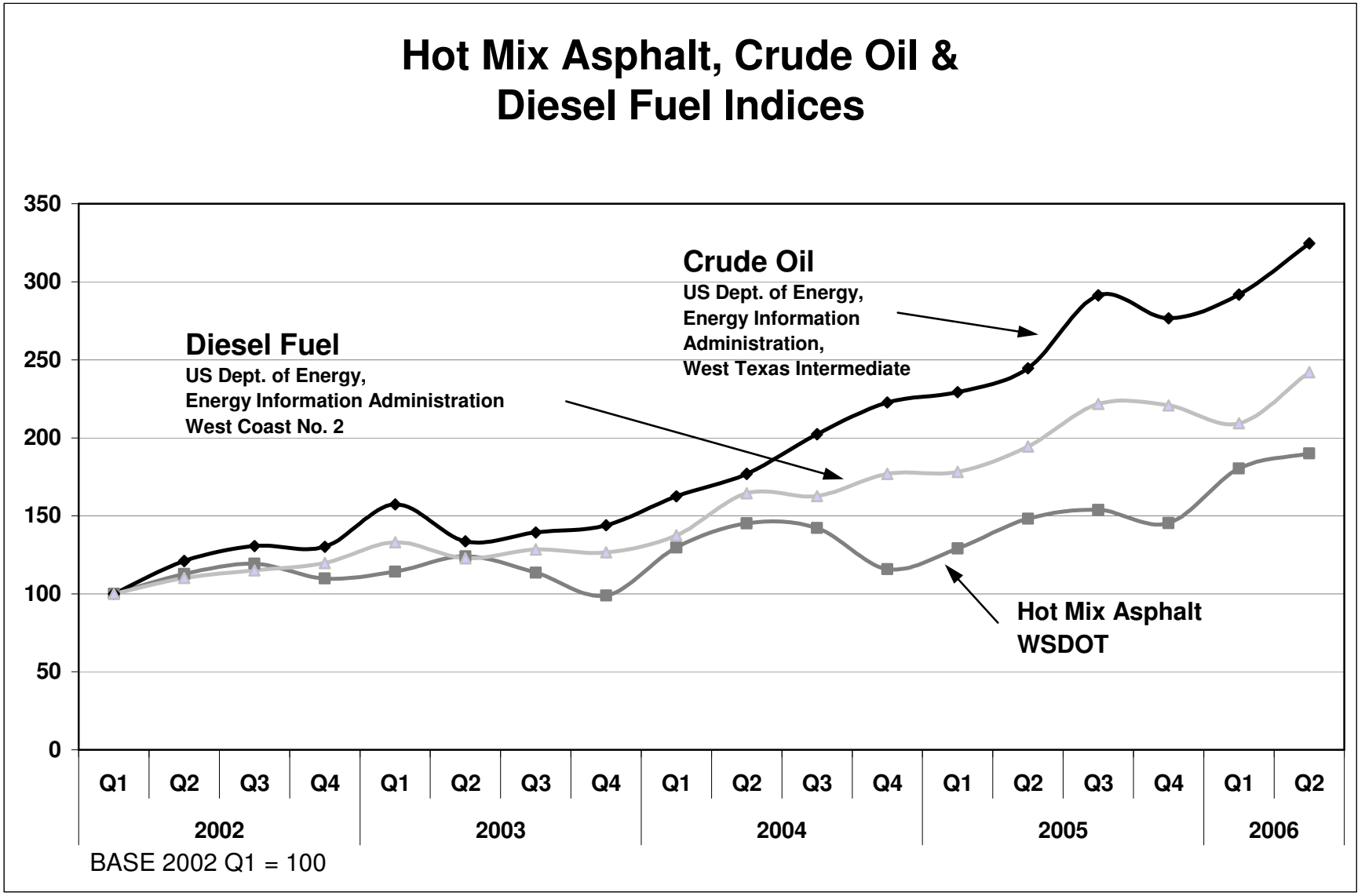
Average Number of Bidders



	2000	2001	2002	2003	2004	2005	YTD2006
1 Bidder	8%	12%	12%	8%	13%	9%	16%
2 Bidders	26%	23%	22%	18%	20%	22%	34%
3 Bidders	24%	23%	16%	24%	23%	33%	17%
3 or more Bidders	66%	64%	65%	74%	66%	69%	50%

The average number of contractors bidding on WSDOT projects has decreased 11% in the first two quarters of 2006, from an average of 3.5 bidders in 2005 to an average of 3.1 bidders in the first two quarters of 2006.

Oil Prices Driving Costs Upward



Communication

- **Communication with Industry**
  - AGC, ADSC, WAPA
- **Media opportunities**
- **Communication with Elected Officials**
  - Committee weekends
  - Budget Hearings
- **Communication with the Governor's Office**
  - Through the Government Management and Accountability Program (GMAP)
  - Governor's Council of Economic Advisors
  - Letter to House and Senate Leadership

Things that control us **Things that we can (partially) control**

Things That Control Us

•Overall volume of public and private sector work seeking contractors.

•Contractors' access to key subcontractors and sources of construction material.

•Bonding and other capacity constraints affecting contractors' appetite for work.

•Market trends in the construction industry towards consolidation and shrinkage of number of local firms.

•Contractors' appetite for "risk" is inversely proportional to the volume of work available

Things That Control Us

Trailing Indicators

WSDOT prepares its construction cost estimates from the information about market conditions drawn from recent bids, not from a crystal ball of future market conditions. WSDOT accumulates construction cost information into a construction cost index and compares that information against the experience of other states. WSDOT's Construction Cost Index is a composite of unit price information from low bids on seven of the most commonly used construction materials. These items reflect a composite cost for a completed item of work and include the cost of labor, equipment and materials.

The first of the graphs on page 43 shows WSDOT's experience since 1990, plotted against similar types of cost indices maintained by the Federal Highway Administration (FHWA) for the country as a whole and by the California Department of Transportation (CalTrans) for California. The second looks in greater detail at the most recent 15 quarters. FHWA has not yet released data on the two most recent quarters. WSDOT will be including Construction Cost Indices for other states in future editions.

Making information available to the public

This quarter, WSDOT began publishing its materials costs on its website. In line with the agency's "No Surprises" philosophy, details on costs trends are now available to the public with updates occurring at the end of every quarter. To view some of the most recent costs by quarter, see the graphs on page 46. These graphs, as well as costs on an annual basis from 1990 to 2004, are available at www.wsdot.wa.gov/biz/construction/constructioncosts.htm.

The Crystal Ball

In the world of markets, everyone knows by heart the disclaimer in the advertisements for mutual funds. "Past results are not a guarantee of future performance." This is precisely the case when looking ahead to national and local construction industry pricing, especially when price volatility seems inevitable from the many trends the industry now faces.

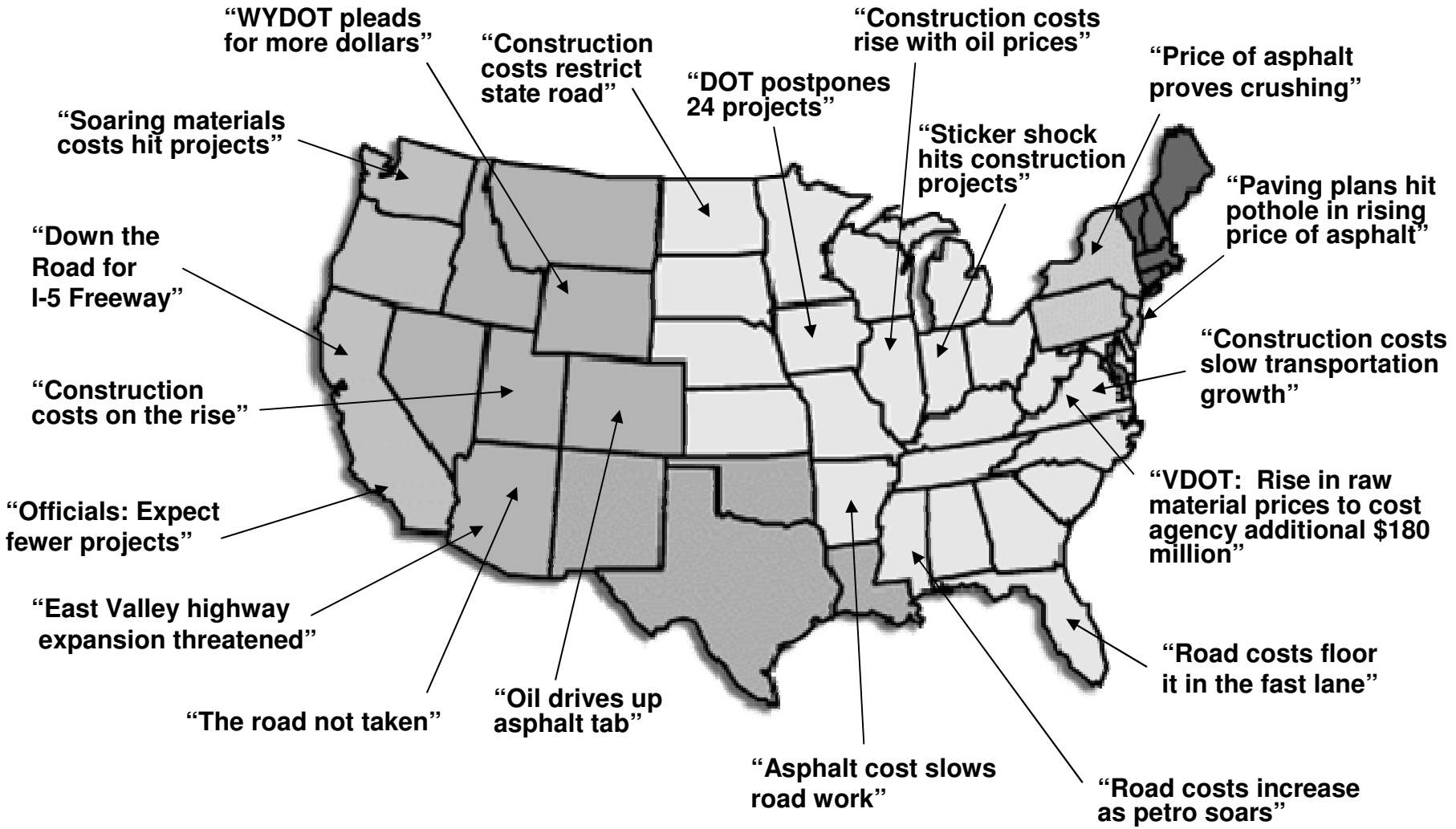
WSDOT's construction cost estimates are necessarily based completely on available trailing indicators and there is neither data nor methodology from which engineers can estimate projects based on crystal ball forecasts of changing future prices. In the Cost Estimate Validation Process (CEVP)™, which WSDOT is applying to large projects, some account is given to baseline future inflation.

For future project costs, WSDOT applies industry standard inflation rates to base estimates in order to project year of construction costs. Recent trends indicate that tables detailing inflation rates were in need of update. The rates used on these tables were evaluated against updated industry forecasts and updated. The changes to the tables include a higher than previously forecasted inflation rate for 2004 and 2005 and an updated forecast for future years. Updating the inflation rates used to forecast future costs attempts to reflect some of the recent price trends.

Recent coverage of construction industry inflation in *The Engineering News Record*, the leading industry periodical, contained the following statements, none of which can be regarded at this time as more than the weathervanes of industry sentiment:

- Typical estimating is based on trailing indicators (past bid history)
- Past results are not a guarantee of future performance
- There is no crystal ball

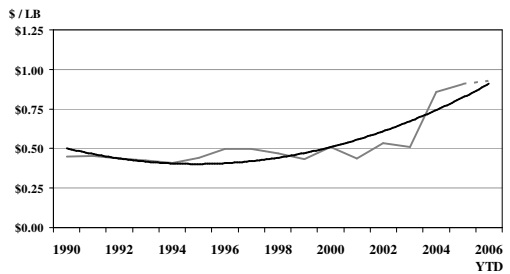
Rising Construction Costs – Record National Media Coverage of Rising Highway Construction Costs and Impacts



We Can Update Our Trailing Indicators

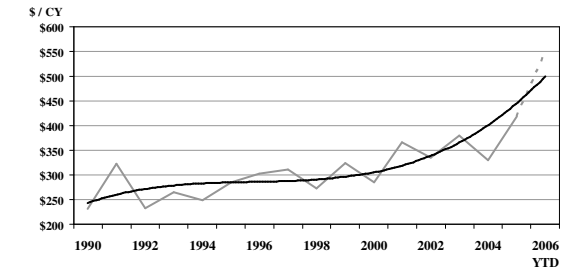
WSDOT sends quarterly updates to its designers (shown below)

Steel Reinforcing Bar Unit Bid Price



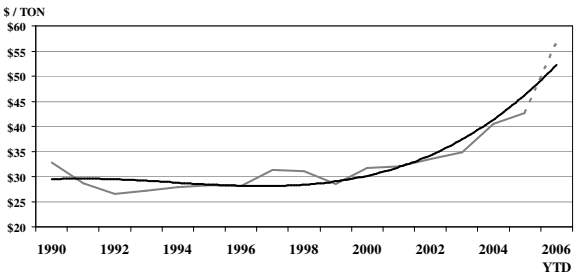
Steel Reinforcing Bar:
The unit bid price increased by $0.33 from the average unit price of $.90 per pound in the first quarter of 2006. The prices ranged from $0.85 to $2.15 per pound.

Structural Concrete Unit Bid Price



Structural Concrete: $480.56 per cubic yard
The unit bid price decreased by $99.35 from the average unit price of $579.91 per cubic yard in the first quarter of 2006. The prices ranged from $385.00 to $1,100.00 per cubic yard.

Hot Mix Asphalt Unit Bid Price



Hot Mix Asphalt: $57.89 per ton
The unit bid price increased by $2.93 from the average unit price of $54.96 per ton in the first quarter of 2006. The prices ranged from $43.41 to $750.00 per ton. The average unit bid price for Eastern Washington was $49. 32 and for Western Washington was $62.86.

Things that We Can (Partially) Control

The "Toolbox"

Reduced cost through increased competition

.

Communication

- Time bid advertisements to promote competitive appetite
- Communication of current and future contract opportunities; special outreach on unusual or difficult projects
- Call bidders

Contract structure

- Bundle/break up projects to attract bidders
- Give flexibility to contractors to encourage them to shop for the most economical materials values ("performance or end product specifications")
- Flexible start date

Owner of choice

- Provide early payment provisions ("materials on hand")
- Cost Reduction Incentive Proposals (CRIPs)
- Fair and efficient practices in contract administration
- Fair and efficient risk allocation in the contracting relationship
- Consistency in Specifications and a fair process for responding to questions and requests for clarification

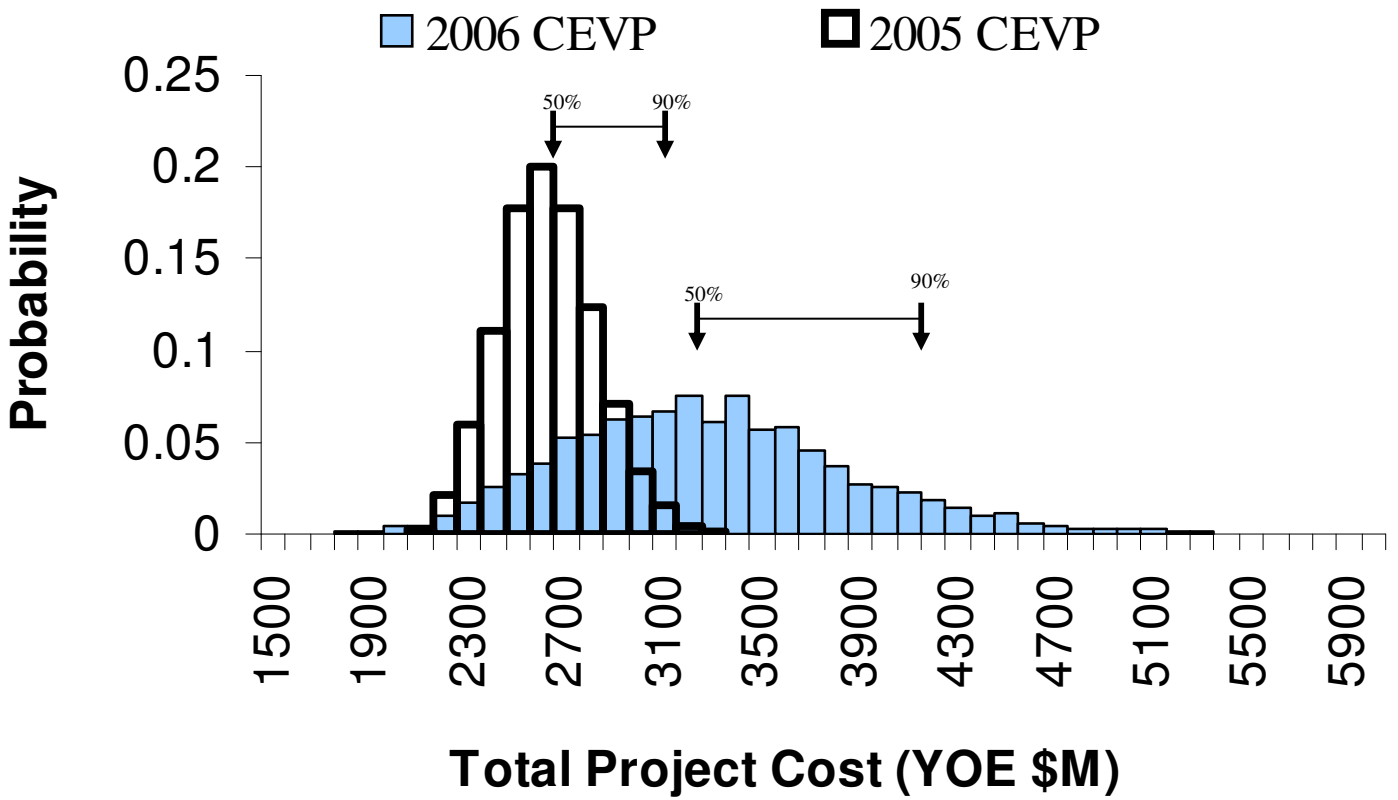
Reduced cost through reduced scope

- Bid "additive alternates"
- Adjust a project scope to "buy-less"
- Cancel a project that inflation in materials costs has made too expensive.

Questions??

http://www.wsdot.wa.gov/biz/construction

Cost Estimate Validation Process



As we begin to re-run CEVPs for a few large projects, we expect that our cost estimate ranges will extend to the right to reflect cost growth and uncertainty about that growth.*

* Other factors, such as a change in scope, may also contribute to a change in cost estimate ranges.